

CLAIM AMENDMENTS

1. (Currently Amended) A ~~balloon catheter~~ medical probe, comprising:
an elongate shaft; and
~~a distally located~~ an inflatable balloon distally located on the elongate shaft, the
inflatable balloon comprising ~~an energy conductive~~ a hydrophilic polymer being electrically
conductive and having a tensile strength of at least 3000 psi when hydrated with an
electrolytic solution, wherein the balloon is ~~molded~~ configured to inflate to specified
equilibrium dimensions when subjected to about one atmosphere of internal pressure.
2. (Currently Amended) ~~The balloon catheter~~ medical probe of claim 1, wherein the
hydrophilic polymer ~~further~~ has an elasticity that permits the balloon to inflate to dimensions
greater than its equilibrium dimensions under more than one atmosphere of internal
pressure without failing.
3. (Currently Amended) ~~The balloon catheter~~ medical probe of claim 2, wherein the
balloon can be inflated to dimensions at least 50% greater than its equilibrium dimensions.
4. (Currently Amended) ~~The balloon catheter~~ medical probe of ~~any one of claims 1, 2~~
~~or 3~~ claim 1, wherein the hydrophilic polymer, when hydrated, comprises from 10 volume
percent to about 40 volume percent water.
5. (Currently Amended) ~~The balloon catheter~~ medical probe of claim 4, wherein the
hydrophilic polymer, when hydrated, comprises about 20% volume percent water.
6. (Currently Amended) ~~The balloon catheter~~ medical probe of either claim 1,
wherein the hydrophilic polymer comprises a ~~conductive~~ homopolymeric or co-polymeric
thermoplastic polyurethane when hydrated with ~~an~~ the electrolytic solution.

7. (Currently Amended) ~~The balloon catheter~~ medical probe of claim 6, wherein the thermoplastic polyurethane is TECOPHILIC®.

8. (Currently Amended) ~~The balloon catheter~~ medical probe of claim 1, further comprising an electrically non-conductive polymer mask adhered to a surface of the balloon to create a pattern of electrically conductive and electrically non-conductive areas when the hydrophilic polymer is hydrated with the electrolytic solution, wherein the electrically non-conductive polymer has physical and chemical characteristics compatible with those of the hydrophilic polymer.

9. (Currently Amended) ~~The balloon catheter~~ medical probe of claim 8, wherein the electrically non-conductive polymer comprises an electrically non-conductive homopolymeric or co-polymeric thermoplastic polyurethane.

10. (Currently Amended) ~~The balloon catheter~~ medical probe of claim 9, wherein the electrically non-conductive polyurethane is TECOFLEX®.

11. (Currently Amended) ~~The balloon catheter~~ medical probe of claim 8 wherein the electrically non-conductive polymer is NeoRez 967®.

12. (Currently Amended) ~~The balloon catheter~~ medical probe of claim 1, wherein the electrically conductive areas of the balloon have a wall thickness of from about 0.0005" to about 0.005".

13. (Currently Amended) ~~A balloon catheter, wherein, when the balloon is inflated under about one atmosphere of pressure or over-inflated with greater than one atmosphere of pressure, it comprises~~ medical probe, comprising:

an elongate shaft;

~~a generally elongate member~~ an inflatable balloon distally located on the elongate shaft, the balloon having a proximal end, a distal end, a first diameter at or near the proximal end, a second diameter at or near the distal end, and a third diameter located between the first and second diameters, wherein: the first and second diameters may be the same or different; the third diameter is less than both the first and second diameters[[:;]], the first diameter is coupled to the third diameter by a distal-facing sloping surface[[: and,]], and the second diameter is coupled to the third diameter by a proximal-facing sloping surface; and

a therapeutic element located on the distal-facing sloping surface.

14. (Currently Amended) ~~The balloon catheter~~ medical probe of claim 13, wherein the second diameter is less than the first diameter.

15. (Cancelled).

16. (Currently Amended) ~~The balloon catheter~~ medical probe of claim 45 ~~13~~, wherein the therapeutic element is selected from the group consisting of an RF energy transmitting element, a microwave energy transmitting element, an ultrasound energy transmitting element, a laser light transmitting element, a drug delivery element, a radiation delivery element, a cryogenic element and a cutting element.

17. (Currently Amended) ~~The balloon catheter~~ medical probe of claim 13, wherein the balloon comprises a ~~an energy-conductive~~ hydrophilic polymer being electrically conductive and having a tensile strength of at least 3000 psi when the hydrated with an electrolytic solution.

18. (Currently Amended) ~~The balloon catheter~~ medical probe of claim 17, wherein the hydrophilic polymer, when hydrated, comprises from 10 volume percent to about 40 volume percent water.

19. (Currently Amended) ~~The balloon catheter~~ medical probe of claim 18, wherein the hydrophilic polymer, when hydrated, comprises about 20% volume percent water.

20. (Currently Amended) ~~The balloon catheter~~ medical probe of claim 17, wherein the hydrophilic polymer comprises an electrically conductive homopolymeric or co-polymeric thermoplastic polyurethane when hydrated with an the electrolytic solution.

21. (Currently Amended) ~~The balloon catheter~~ medical probe of claim 20, wherein the thermoplastic polyurethane is TECOPHILIC®.

22. (Currently Amended) ~~The balloon catheter~~ medical probe of claim 12 ~~17~~, further comprising an electrically non-conductive polymer mask adhered to the distal-facing surface of the balloon to create a pattern of electrically conductive and electrically non-conductive areas when the hydrophilic polymer is hydrated with the electrolytic solution, wherein the electrically non-conductive polymer has physical characteristics compatible with those of the hydrophilic polymer.

23. (Currently Amended) ~~The balloon catheter~~ medical probe of claim 22, wherein the electrically non-conductive polymer comprises an electrically non-conductive homopolymeric or co-polymeric thermoplastic polyurethane.

24. (Currently Amended) ~~The balloon catheter~~ medical probe of claim 23, wherein the electrically non-conductive polyurethane is TECOFLEX®.

25. (Currently Amended) ~~The balloon-catheter~~ medical probe of claim 22, wherein the electrically non-conductive polymer is NeoRez 967®.

26. (Currently Amended) ~~The balloon-catheter~~ medical probe of claim 22, wherein the electrically conductive areas of the balloon have a wall thickness of from about 0.0005" to about 0.005".

27. (Currently Amended) ~~The balloon-catheter~~ medical probe of either claim 8 1 or claim ~~22~~ 13, comprising wherein the balloon is an ablation balloon-catheter.

28. (Currently Amended) ~~The balloon-catheter~~ medical probe of claim 27, wherein the ~~energy conducted is RF energy~~ balloon is an RF ablation balloon.

29. (Currently Amended) ~~An electrode assembly~~ A medical probe, comprising:
an ~~elongate member~~ elongate shaft;

an inflatable member ~~secured to~~ distally located on the elongate member, the inflatable member having a proximal end, a distal end, a lumen extending therebetween, and an electrically conductive region; and

an electrode carried by the elongate member, the electrode located within the lumen of the inflatable member and proximal to the electrically conductive region of the inflatable member.

30. (Currently Amended) ~~The electrode assembly~~ medical probe of claim 29, wherein the inflatable member comprises an ~~energy-conductive~~ hydrophilic polymer being electrically conductive and having a tensile strength of at least 3000 psi when hydrated within an electrolytic solution.

31. (Currently Amended) The ~~electrode assembly~~ medical probe of claim 29, wherein the inflatable member is ~~molded~~ configured to inflate to specified equilibrium dimensions when subjected to about one atmosphere of internal pressure.

32. (Currently Amended) The ~~electrode assembly~~ medical probe of claim 29 30, further comprising an electrically non-conductive polymer mask adhered to a surface of the inflatable member to create a pattern of electrically conductive and electrically non-conductive areas when the hydrophilic polymer is hydrated with the electrolytic solution, wherein the electrically non-conductive polymer has physical and chemical characteristics compatible with those of the hydrophilic polymer.

33. (Newly Added) The medical probe of any of the claims 1, 13, and 29, wherein the elongate shaft is configured to be intravascularly introduced into a patient.

34. (Newly Added) The medical probe of claim 33, wherein the elongated shaft is configured to be introduced within a heart of the patient.

35. (Newly Added) A method of treating an ostium of a blood vessel, comprising:
inserting the medical probe of claim 13 through the ostium into the blood vessel;
inflating the balloon, so that expansion of the second diameter dilates the blood vessel, thereby causing a wall of the blood vessel to apply pressure to the proximal-facing sloped surface and to pull the distal-facing sloped surface into intimate contact with tissue in the vicinity of the ostium; and
operating the therapeutic element to provide therapy to the ostium.